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CENTRAL INTELLIGENCE AGENCY

INFORMATION REPORT

COUNTRY USSR

SUBJECT The Kirov Synthetic Rubber Factory (СИНТЕТИК
КАУЧУК КОМБИНАТ ИМЕНИ КИРОВА)

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1. The Kirov Synthetic Rubber Factory was begun in 1930 and was the first factory in the USSR for the production of rubber from the particular raw materials which were used. These materials were calcium oxide, salt, water, and coal, and the factory was built at Brevan because all of these materials except coal were abundantly available in the area. The coal was brought from the Ukraine. Cheap electricity, another important factor, was also plentiful. The factory was an outgrowth of a small pilot operation in Leningrad where a negligible amount of synthetic rubber was being produced of the same materials and by the same processes established for the Kirov plant. In 1940, synthetic rubber was being made from alcohol at Soviet factories in Yaroslavl, Efremov, and Kazan. As of 1948, my last year in the USSR, the Kirov plant was still the only one of its kind in the USSR, except for the Leningrad operation, and I have heard nothing

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since to indicate the existence of another such synthetic rubber enterprise anywhere else in the USSR.

2. From June 1939 to February 1940 I was employed by the plant as a chemical technician in the carbide department [see Enclosures (A) and (B)]. This was in the non-secret part of the factory, to which I was assigned because of my failure to receive NKVD clearance for more secret work in synthetic rubber production. My knowledge of the restricted parts of the plant was gained from friends who were employed there and from my own observations which even the special security precautions could not prohibit entirely. The plant was producing carbide prior to 1936 and its carbide production capacity in 1940, according to my personal estimate, was over 100 tons per day. The acetylene department was developed slowly between the years 1933 and 1939. When construction of this part of the factory was begun in 1933, it was expected that synthetic rubber production would begin sometime during 1938 or 1939. Actually, there was very little production [redacted] The plant was completed and started with engineers, technicians, and workers but the bugs in the process had not been eliminated by early 1940 and I believe it was late in 1941 or early in 1942 before any appreciable synthetic rubber production was achieved. I would not try to estimate what production was in early 1940 or what it might have been by mid-1942. There was always talk of ultimately expanding the operation beyond its 1940 dimensions.
3. The construction of this plant was a political and industrial shambles. I have always felt that the Soviet performance on this project was an outstanding instance of its kind and contains important lessons for the non-Communist world. There was no precedent for the project, leaving out of account the Leningrad pilot plant, and it was built from new specifications which had never before yielded up any similar going concern. Every piece of work was checked by inspection commissions which arrested engineers by the dozen and required everything which deviated in the slightest degree from the specifications to be torn down and started again. No honest mistake was ever made during the six years of building and rebuilding this factory. Approximately 50% of the professional people associated with the project during these six years were accused of sabotage, counter-revolutionary activity, diversionism or related crimes, and most of them spent some time in jail.
4. The Kirov Synthetic Rubber Factory was under special security measures from the first and was dominated by Russians rather than by Armenians. It was the only factory in Armenia, to the best of my knowledge, in which Russian and not Armenian was the primary language. All the security guards were Russians as were most of the workers in the secret sections of the plant. Most of the engineers were Armenians but it was clear that the USSR did not trust security functions to Armenians, nor did it want large groups of Armenian workers in the sensitive areas of the operation. The first head of the factory was a Russian named JOPMH, a military academy graduate who had civilian status and wore civilian clothes at the plant. He was succeeded in 1938 (?) by an Armenian woman, whose name I have forgotten, but who was no more than 40 years old and was a member of the Armenian Praesidium. The chief engineers of the plant were, as I have said, mostly Armenians and they were replaced nearly every year. I can remember the names of none of them.
5. The plant was built for defense against air attack. There were air raid shelters under every building and each department had an air raid warden who conducted periodic drills. The shelters were concrete and were reached by ramps. They were quite deep, judging from my recollection of the grade of the ramps and the distance one walked to reach the shelters.

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6. The factory employed a total of over five thousand persons on all shifts. Approximately 25% were women. The women were used as laboratory analysts, office workers, light laborers in the producing and processing units, and charwomen. Of the five thousand employees, about 100 were professional engineers and another 100 [redacted]. The percentage of women in both the professional and technical groups was roughly the same - 25% - as for the factory personnel as a whole.

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7. The employees worked a six-day week with total hours ranging from 36 to 48 depending upon the length of the daily shift which depended, in turn, on the kind of work performed. Everyone received one week's vacation with pay each year and no additional unpaid vacation was authorized. The salary of the professional engineers ranged from 5-900 rubles a month depending upon the degree of experience and responsibility, and the shift to which the engineer was assigned. [redacted]

more experienced technicians with [redacted] formal training were earning up to 400 or 450 rubles a month. The wages of workers varied from a minimum of 150 to a maximum of 500 rubles a month. The men working the six-hour shifts on the furnaces in the carbide department received 500 rubles a month. In general, the women in the plant in all categories received 25% lower wages for the same work. So far as I know, there was no wage differential on the basis of nationality - ie Russian or Armenian - despite the over-all pattern of Russian domination of the enterprise, particularly plant security and the secret acetylene-conversion processes.

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8. We were told by plant officials that the factory had been specially designed for quick conversion to purely military production in wartime. We were not, however, told what could be produced. The salt department could have been the basis for the production of poison gas. After the German invasion, while I was in the Ukraine, I heard indirectly that part of the plant was being used for war production but I did not hear anything about what was being made.

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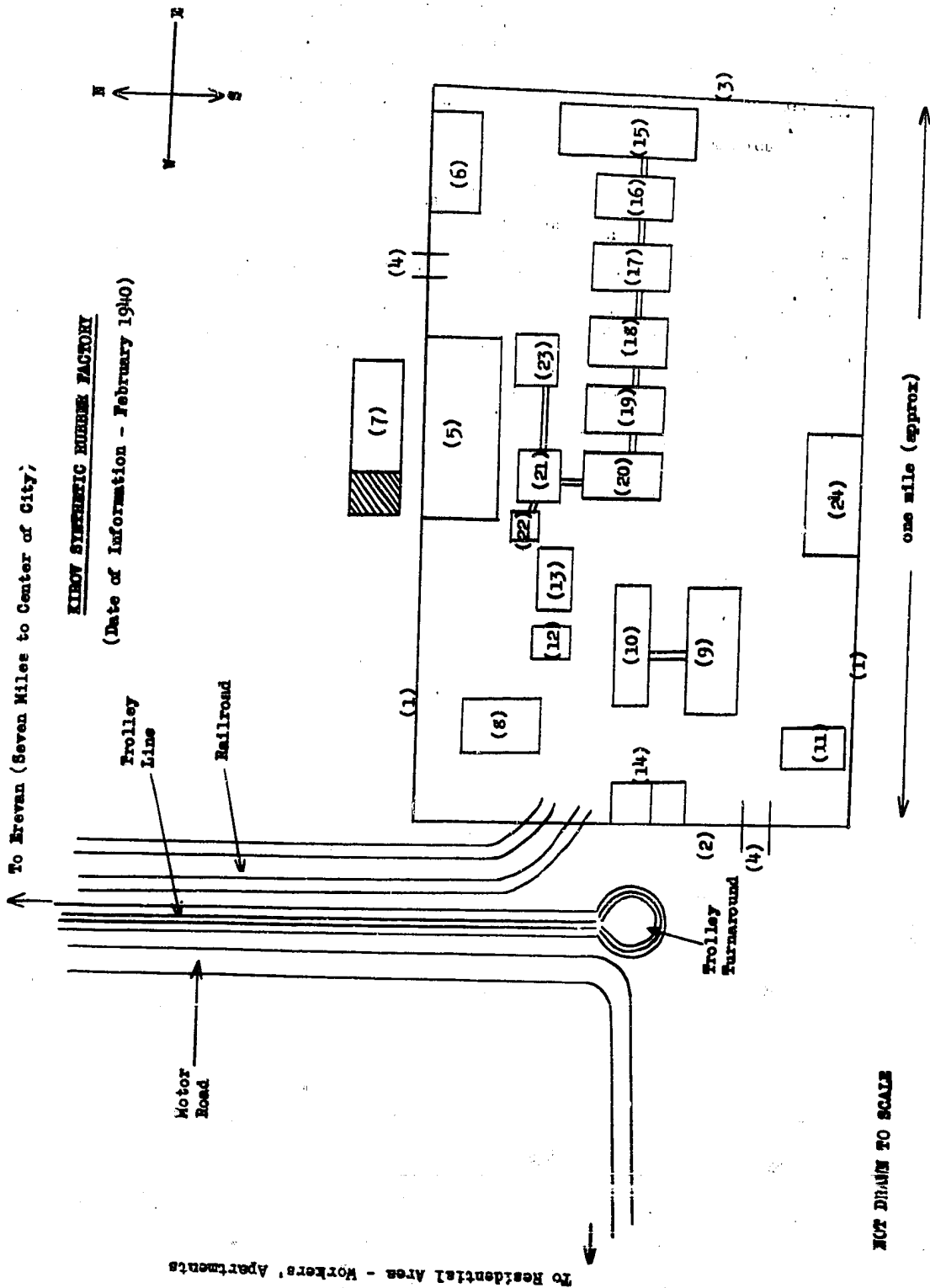
ENCLOSURE (A): Sketch of the Layout of the Kirov Synthetic Rubber Factory With Legend

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Enclosure (A)



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- (1) Twelve-foot high brick walls on both north and south sides.
- (2) Metal screen fence 10-12 feet high topped with barbed wire.
- (3) Brick or concrete wall 10-12 feet high. [Source uncertain of east enclosure, regards this as the probability.]
- (4) Workers' exits. Under 24-hour guard by Russians, not Armenians.
- (5) Administrative Offices. Three-story white plaster building.
- (6) Executive Offices. Two-story white plaster building containing the private offices of senior engineers and key administrative personnel. The larger building (5) was commonly referred to as the "Central Administrative Building".
- (7) Four-story building containing dormitories for single plant workers. The west side of the building (shaded area) housed a machinist school for factory personnel. The dormitory contained about 100 rooms occupied by eight to 10 persons each. Both male and female employees lived in the dormitory. There were a cafeteria, laundry facilities etc in the building which was constructed of some kind of tuff.
- (8) Electrode Department. Three eight-hour shifts a day made solid cylinder electrodes of coal and coal products measuring about 10 yards long and a little over a yard in diameter. Each shift had 30 persons of which five were women. The building was gray concrete turned black and grimy with smoke. Part of the building was set aside for drying; the electrodes were hung from the ceiling and dried for a month before being sent to the carbide department.
- (9) Carbide Department. [redacted] There were four six-hour shifts a day in this department with a total of about 70 persons a shift. Six large Swedish-type half-open stoves of heat-resistant ceramic were in the department. Three electrodes produced by the electrode department were used in each stove. Eleven men were assigned to each stove, and one man for each two stoves had the job of putting coal and calcium oxide into the stoves. Other personnel in the department handled technical matters such as electricity control and quality analysis. The liquid carbide dropped from the stoves into small cars on rails for transfer to the cooling department. Higher wages and shorter hours for the laborers in this department did not compensate them for the appalling conditions. Temperatures near the stoves exceeded 200° F and the men sweated foam inside their inch-thick suits. Five years was as long as anyone could work on the stoves and the morale of these workers was very low. [redacted] some of the stoves were often used for other purposes, mainly in connection with the steel industry.
- (10) Cooling Department. The hardened carbide in two-ton blocks was lifted out of the cars by cranes in this department and placed on metal rails to cool. After four hours' cooling these blocks were again lifted by cranes and transferred to another section of the department where machines cut them into half-pound pieces. Elevators carried these pieces away and deposited them in barrels which were then tightly covered. [redacted] was shipped out of the plant for use elsewhere, since extensive synthetic rubber production had not yet begun. The cooling department was staffed by 15 people in each of three eight-hour shifts. Three or four of the workers were women.
- (11) Calcium Oxide Department. This unit of the plant had six large closed furnaces about 15 meters high which prepared calcium oxide for the carbide department. There were four men on each furnace and a total of 25 men on each of four shifts a day.

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ENCLOSURE (A)
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- (12) Barrel Department. Three eight-hour shifts of 25 people, one half of whom were women, made the iron barrels in which the carbide was stored.
- * (13) Electricity Transformation Department. This unit was under special security regulations and I do not know anything about its output or the number and kinds of workers. Its function was to convert to lower voltage the electric power which ran the plant and which was brought from the Kanaker power plant north of Erevan and 12 miles from the factory.
- (14) Raw Materials Storehouse. There were 10 people on each of three eight-hour shifts.
- * (15) Acetylene Department. Produced acetylene gas.
- * (16) Cleaning Department. Acetylene gas made in the acetylene department was piped into this department and cleaned by means of some chemical process which I never learned about.
- * (17) Reacting Department. [Source not certain of this name.] After cleaning, the gas was transformed into liquid acetylene in this department.
- * (18) Absorption Department. A process concerning which I have no information was used to clean the liquid acetylene.
- * (19) Desorption Department. A further cleaning process about which I am equally uninformed.
- * (20) Catalyzation Department. I know nothing about the operations of this department except that it was here that the liquid was changed into viscous material by a process which was the most closely guarded secret of the plant. I learned from friends that there were five small laboratories in this department where highly technical functions were performed under special guard.
- * (21) Separation Department. In this department the viscous material was separated into components or qualities referred to as alpha, beta, gamma and so on.
- * (22) Benzol Department. This small department was an adjunct of the Separation Department, the benzol presumably being prepared here for use in the separation process.
- * (23) Refining Department. This was the end of the line. The raw synthetic rubber emerged from this department in pieces of various shapes and sizes and, at that time, was being sent to Tbilisi where it would be made into finished articles in Georgian factories. This was a cause of some discontent among the Armenians who would have liked to have had rubber-products factories in Armenia to augment the demand in that republic for industrial labor. Since there seemed no logical economic reason for transporting the raw rubber to Georgia, a move which obviously increased the energy cost of the finished manufactures, it was generally assumed that political matters were involved. I later heard, however, (I think it was while I was in DP camp in Germany several years after the end of World War II) that the factory had begun making automobile and truck tires.
- * (24) Salt Department. I have put this department at the end since I do not know where its function entered into the process. Its end product was called Sovpren by the Soviets who claimed to have invented either the process or the compound, but which I believe is exactly the same thing as chloroprene made from acetylene and hydrochloric acid. As I have indicated, this department is of significance in connection with statements that the plant was readily convertible to war production.

* Under special guard and staffed by employees with special NKVD security clearances.

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